

AIR QUALITY PERMIT

Issued To: Westmoreland Savage Mine
P. O. Box 30, Savage Mine
Savage, Montana 59262-0030

Permit#: 1851-04
Administrative Amendment Request Received: 02/02/04
Department Decision on Administrative
Amendment: 02/05/04
Permit Final: 02/21/04
AFS: #083-0005

An air quality permit, with conditions, is hereby granted to Westmoreland Savage Mine (WSM), pursuant to Sections 75-2-204 and 211 of the Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM) 17.8.740, *et seq.*, as amended, for the following:

SECTION I: Permitted Facilities

A. Plant Location

The surface lignite coal mine is located approximately 5 miles west of the town of Savage, in Sections 21, 22, 23, 26, 27, and 28, Township 20 North, Range 57 East, Richland County, Montana.

B. Current Permit Action

On February 2, 2004, the Montana Department of Environmental Quality (Department) received a request from WSM for an administrative amendment to change the mine name from WCCO-KRC Acquisition Corporation to WSM. The current permit action updates the permit to reflect the above cited name change and incorporates updated rule references from the Administrative Rules of Montana (ARM) 17.8, Subchapter 7, into the permit.

SECTION II. Conditions and Limitations

A. Emission Limitations

1. Maximum annual coal production shall be limited to 450,000 tons in any 12-month rolling time period (ARM 17.8.749).
2. WSM shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
3. WSM shall treat all unpaved portions of the haul roads, access roads, parking lots, or general plant area with water and/or chemical dust suppressant, as necessary, to maintain compliance with the reasonable precautions limitation in Section II.A.2 (ARM 17.8.749).
4. WSM shall comply with all applicable standards and limitations, and the reporting, record keeping and notification requirements contained in 40 CFR 60, Subpart Y (ARM 17.8.340 and 40 CFR 60, Subpart Y).
5. WSM shall not cause visible emissions of 20% or greater opacity to be discharged into the atmosphere from any process or fugitive emission source (ARM 17.8.304)

6. The following lists the required emission control technologies and techniques:
 - a. With respect to coal handling, processing and storage activities, including the portable crushing facility, reasonable precautions must be undertaken to minimize fugitive dust emissions. This may include water sprays if the natural moisture content of the coal is not sufficient to comply with the opacity standard (ARM 17.8.752).
 - b. Haul and Access Roads – application of chemical stabilization and/or watering as necessary with on-going grading to remove loose debris (ARM 17.8.752).
 - c. Overburden and Coal Blasting – minimize fall distance (ARM 17.8.752).
 - d. Overburden and Coal Blasting – conduct in such a manner as to prevent over-shooting and to minimize the area to be blasted (ARM 17.8.752).
 - e. Disturbed Areas – minimize area of disturbance and prompt re-vegetation (ARM 17.8.752).
 - f. Coal stacking at the tipple is to be accomplished utilizing a stacking tube with openings along its length. The openings are covered with rubber flaps, minimizing the fall distance of the coal after leaving the tube (ARM 17.8.752).

B. Testing Requirements

1. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
2. The Department may require testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. WSM shall monthly total the coal production during the previous 12 months to verify compliance with the limitation in Section II.A.1. The totals shall be available by the 25th day of the following month. A written report of the compliance verification shall be submitted to the Department annually. The report shall be submitted no later than March 1 and may be submitted along with the annual inventory (ARM 17.8.749).
2. WSM shall supply the Department with annual production information for all emission points, as required by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in the emission inventory contained in the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in the units required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations. WSM shall submit the annual coal production to the Department by March 1 of each year or with the annual emission inventory (ARM 17.8.505).

3. WSM shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745, that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location or fuel specifications, or

would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted to the Department, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

SECTION III: General Conditions

- A. Inspection – WSM shall allow the Department’s representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver – The permit and the terms, conditions, and matters stated herein shall be deemed accepted if WSM fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations – Nothing in this permit shall be construed as relieving WSM of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement – Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement action as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals – Any person or persons jointly or severally adversely affected by the Department’s decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department’s decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department’s decision until conclusion of the hearing and issuance of a final decision by the Board.
- F. Permit Inspection – As required by ARM 17.8.755, Inspection of Permit, a copy the air quality permit shall be made available for inspection by the Department at the location of the source.
- G. Permit Fee – Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by WSM may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

Permit Analysis
Westmoreland Savage Mine
Permit #1851-04

I. Introduction/Process Description

A. Permitted Equipment

Westmoreland Savage Mine (WSM) operates the following equipment at the Savage Mine:

1. Centralized coal processing and handling systems including truck dump, crushing, conveying, storage stockpile, and a portable crushing facility.
2. Necessary auxiliary equipment including dragline, trucks, shovels, scrapers, drills, dozers, loaders, etc., as applicable.

B. Source Description

The Savage Mine has been in operation since 1958 and produces lignite coal using standard dragline overburden stripping practices, and truck and shovel methods for coal removal. The facility includes primary and secondary crushing operations, along with conveyors and an open coal stockpile. The lignite coal is hauled in semi-tractor/trailer trucks to Sidney, Montana where the majority of the coal is combusted in the electrical generation power plant owned by Montana-Dakota Utilities. Additionally, some of the coal is used at the Holly Sugar facility in Sidney.

C. Permit History

Permit #1720 was issued on October 25, 1982, to Knife River Coal Mining Company for the coal load-out operations at their Savage Mine.

Permit #1851 was issued to Knife River Coal Mining Company for the mining operations at their Savage Mine on April 16, 1984. Maximum annual production was limited to 300,000 tons. The coal load-out operations previously authorized by Permit #1720 were incorporated into Permit #1851.

Permit #1851-01 was issued on May 1, 1997, for an alteration to add an in-pit crushing facility and to increase the permitted annual coal production from 300,000 to 350,000 tons per year.

Permit #1851-02 was issued on February 26, 1997, for a modification that reflected the ownership change from Knife River Coal Mining Company to Knife River Corporation. Additionally, the rule citations were updated to reflect a change in numbering.

On January 10, 2001, the Knife River Corporation sent written notification to the Department concerning the pending asset sale with WCCO-KRC Acquisition Corporation for the Savage Mine. In the letter, Knife River Corporation requested the transfer of air quality Permit #1851, pending final approval of the sale. On May 1, 2001, the sale was completed. On June 22, 2001, WCCO-KRC Acquisition Corporation submitted an application to increase the annual production limit from 350,000 to 450,000 ton/year. WSM also requested that the description of the "in-pit crusher" be changed to "portable crushing facility." Also, this permit action updated the emission inventory and permit format. Permit **#1851-03** replaced Permit #1851-02.

D. Current Permit Action

On February 2, 2004, the Montana Department of Environmental Quality (Department) received a request from WSM for an administrative amendment to change the mine name from WCCO-KRC Acquisition Corporation to WSM. The current permit action updates the permit to reflect the above cited name change and incorporates updated rule references from the Administrative Rules of Montana (ARM) 17.8, Subchapter 7, into the permit. Permit #1851-04 replaces Permit #1851-03.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

A. ARM 17.8, Subchapter 1 – General Provisions, including but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices), and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

WSM shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including, but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.

4. ARM 17.8.110 Malfunctions. (2) The Department must be notified by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means that, without resulting in reduction of the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner as to create a public nuisance.

B. ARM 17.8, Subchapter 2 – Ambient Air Quality, including, but not limited to the following:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide

4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

WSM must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 – Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, WSM shall not cause or authorize the use of any street, road or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.
3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. This rule requires that no person shall burn liquid, solid or gaseous fuel in excess of the amount set forth in this section.
6. ARM 17.8.324(3) Hydrocarbon Emissions--Petroleum Products. No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device as described in (1) of this rule.
7. ARM 17.8.340 Standard of Performance for New Stationary Sources and Emission Guidelines for Existing Sources. This rule incorporates, by reference, 40 CFR 60, Standards of Performance for New Stationary Sources (NSPS). WSM is considered an NSPS affected facility under 40 CFR 60 and is subject to the requirements of the following subparts:

40 CFR 60, Subpart A, General Provisions.

40 CFR 60, Subpart Y, Standard of Performance for Coal Preparation Plants. This subpart applies only to the portable crushing facility. The other facilities at the Savage Mine were constructed prior to the NSPS applicability date of October 24, 1974.

8. ARM 17.8.341 Emission Standards for Hazardous Air pollutants. This source shall comply with the standards and provisions of 40 CFR 61, as appropriate.

D. ARM 17.8, Subchapter 5 – Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:

1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. The current permit action is an administrative amendment and does not require a permit application or permit application fee.
2. ARM 17.8.505 When Permit Required--Exclusions. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit (excluding an open burning permit) issued by the Department. The air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar year basis, including provisions that prorate the required fee amount.

E. ARM 17.8, Subchapter 7 – Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. WSM has the PTE more than 25 tons per year of particulate matter (PM); therefore, an air quality permit is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that are not subject to the Montana Air Quality Permit program.
4. ARM 17.8.745 Montana Air Quality Permits--Exclusion for De Minimis Changes. This rule identifies the de minimis changes at permitted facilities that do not require a permit under the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Modified Emitting Units--Permit Application Requirements. (1) This rule requires that a permit application be submitted prior to installation, alteration or use of a source. (7) This rule requires that the applicant notify the public by means of legal publication in a newspaper of general circulation in the area affected by the application for a permit. The current permit action is an administrative amendment and does not require submittal of an application or a publication of public notice.
6. ARM 17.8.749 Conditions for Issuance or Denial of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.

7. ARM 17.8.752 Emission Control Requirements. This rule requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. The current permit action is an administrative amendment and does not require a BACT analysis or a BACT determination.
 8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits shall be made available for inspection by the Department at the location of the source.
 9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving WSM of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
 10. ARM 17.8.759 Review of Permit Applications. This rule describes the Department's responsibilities for processing permit applications and making permit decisions on those permit applications that do not require the preparation of an environmental impact statement.
 11. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
 12. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
 13. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10. The current permit action is an administrative amendment.
 14. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.
- F. ARM 17.8, Subchapter 8 – Prevention of Significant Deterioration of Air Quality, including, but not limited to:
1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.

2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to the FCAA that it would emit, except as this subchapter would otherwise allow.

This facility is not a major stationary source since this facility is not a listed source and the facility's PTE (excluding fugitive emissions) is less than 250 tons per year of any pollutant.

G. ARM 17.8, Subchapter 12 – Operating Permit Program Applicability, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any source having:
 - a. PTE > 100 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one Hazardous Air Pollutant (HAP), PTE > 25 tons/year of a combination of all HAPs, or lesser quantity as the Department may establish by rule; or
 - c. Sources with the PTE > 70 tons/year of PM₁₀ in a serious PM₁₀ nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program. (1) Title V of the FCAA amendments of 1990 requires that all sources, as defined in ARM 17.8.1204(1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #1851-04 for WSM, the following conclusions were made:
 - a. The facility's PTE is less than 100 tons/year for any pollutant, excluding fugitives.
 - b. The facility's PTE is less than 10 tons/year for any one HAP and less than 25 tons/year of all HAPs.
 - c. This source is not located in a serious PM₁₀ nonattainment area.
 - d. This facility is subject to a NSPS standard: 40 CFR Part 60, Subpart Y – Coal Preparation Plants. Only the portable crushing unit is subject to these requirements as the remainder of the mining operations and equipment pre-date the NSPS applicability date.
 - e. This facility is not subject to any current NESHAP standards.
 - f. This source is not a Title IV affected source, nor a solid waste combustion unit.
 - g. This source is not an EPA designated Title V source.

The facility's PTE is less than 100 tons/year for any pollutant because fugitive emissions are excluded; therefore, WSM is a minor source as defined under the Title V operating permit program. However, if minor sources subject to NSPS are required to obtain a Title V operating permit, WSM will be required to obtain a Title V operating permit.

III. BACT Determination

A BACT determination is required for each new or altered source. WSM shall install on the new or altered source the maximum air pollution control capability which is technically practicable and economically feasible, except that BACT shall be utilized. The current permit action is an administrative amendment and does not require a BACT analysis or BACT determination.

IV. Emission Inventory

The following tables list the estimated particulate matter and gaseous emissions based on the maximum production rate.

Table 1. Particulate Matter Emissions

Emission Source (activity unit)	Annual Process Rate	Emission Factor (lb/unit)	Control Measure (% efficiency)	PM Emissions (tons/yr)
Topsoil Handling (tons) ^A	179,397	0.058 ^B		5.2
Overburden Removal (yards ³)	1,869,844	0.058 ^C		54.2
Wind Erosion (acres)	215	760 ^D		81.7
Coal Loading (tons)	450,000	0.037 ^E		8.3
Coal Dumping (tons)	450,000	0.066 ^B		14.9
Haul Roads (vehicle miles)	45,267	6 ^F	Watering (50)	67.9
Primary Crusher (tons)	450,000	0.02 ^G	Water Sprays As Necessary (90)	0.5
Secondary Crusher (tons)	450,000	0.05 ^G	Water Sprays As Necessary (90)	1.1
Conveyors (tons)	450,000	0.01 ^G	Water Sprays As Necessary (50)	1.1
Coal Storage (acre)	1	70,641 ^H		35.3
Diesel Exhaust (10 ⁶ gallon)	124.1	17.7 ^I		1.1
TOTAL				271.3

^A Topsoil cubic yards * 1.5 = tons

^B EPA AP-42, Table 11.9-4, July 1998

^C EPA AP-42, Table 11.9-1, July 1998; $PM = \{0.0021 (d)^{1.1}\} / (M)^{0.3}$ where drop distance (d) = 28.1 ft. & % moisture (M) = 3.2% from Table 11.9-3

^D EPA AP-42, Table 11.9-4, July 1998; PM EF = 0.38 ton/acre-year = 760 lb/acre-year

^E EPA AP-42, Table 11.9-1, July 1998; $PM = 1.16 / (M)^{1.2}$ where % moisture (M) = 17.8% from Table 11.9-3

^F From the Department's Haul Road Emission Factor policy statement (4/25/94), small haul trucks (< 50 ton)

^G From the Department's Mineral Processing & Material Handling Emission Factor policy statement (5/6/94), high moisture ore;

^H EPA AP-42, Table 11.9-1, July 1998; $PM = 0.72 * \mu$ where wind speed (μ) = 11.2 mph for mine type IV from Table 11.9-5; PM = 8.064 lb/acre-hour

^I EPA AP-42, Vol. II, Heavy Duty Construction Equipment, off-road truck

Note: The components of the portable crushing facility are not listed separately. The processing emissions shown are representative of both the portable crushing system and the existing facilities. The inherent water content of the coal is generally adequate to control emissions and maintain compliance with opacity standards, but the addition of water may be necessary at times.

Table 2. PM₁₀ Emissions

Emission Source (activity unit)	Annual Process Rate	Emission Factor (lbs/unit)	Control Measure (% efficiency)	PM ₁₀ Emissions (tons/yr)
Topsoil Handling (tons) ^A	179,397	0.015 ^B		1.3
Overburden Removal (yards ³)	1,869,844	0.015 ^C		14.0
Wind Erosion (acres)	215	197 ^D		21.2
Coal Loading (tons)	450,000	0.007 ^E		1.6
Coal Dumping (tons)	450,000	0.012 ^F		2.7
Haul Roads (vehicle miles)	45,267	2.7 ^G	Watering (50)	30.6
Primary Crusher (tons)	450,000	0.009 ^H	Water Sprays As Necessary (90)	0.20
Secondary Crusher (tons)	450,000	0.02 ^H	Water Sprays As Necessary (90)	0.5
Conveyors (tons)	450,000	0.004 ^H	Water Sprays As Necessary (50)	0.5
Coal Storage (acre)	1	13,365 ^I		6.7
Diesel Exhaust (10 ⁶ gallon)	124.1	17.7 ^J		1.1
TOTAL				80.4

^A Topsoil cubic yards * 1.5 = tons

^B PM-10 factor estimated from overburden PM-10/PM ratio (0.259); footnote C & EPA AP-42, Table 11.9-4, July 1998; PM-10 = (0.058 * 0.259)

^C EPA AP-42, Table 11.9-1, July 1998; PM-10 = PM-15 * 0.75; PM-15 = {0.0021 (d)^{0.7}} / (M)^{0.3} where drop distance (d) = 28.1 ft. & % moisture (M) = 3.2% from Table 11.9-3

^D PM-10 factor estimated from overburden PM-10/PM ratio; footnote C & EPA AP-42, Table 11.9-4, July 1998; PM EF = 0.38 ton/acre-year = 760 lb/acre-year; PM-10 = (760 * 0.259)

^E EPA AP-42, Table 11.9-1, July 1998; PM-10 = PM-15 * 0.75; PM-15 = 0.119 / (M)^{0.9} where % moisture (M) = 17.8% from Table 11.9-3

^F PM-10 factor estimated using coal loading PM-10/PM ratio (0.007/0.037); footnote E & EPA AP-42, Table 11.9-4, July 1998

^G From the Department's Haul Road Emission Factor policy statement (4/25/94), small haul trucks (< 50 ton)

^H From the Department's Mineral Processing & Material Handling Emission Factor policy statement (5/6/94), high moisture ore;

^I PM-10 factor estimated using coal loading PM-10/PM ratio (0.007/0.037); footnote E & EPA AP-42, Table 11.9-1, July 1998; PM = 0.72 * μ where wind speed (μ) = 11.2 mph for mine type IV from Table 11.9-4

^J EPA AP-42, Vol. II, Heavy Duty Construction Equipment, off-road truck; assume all PM is PM-10

Note: The components of the portable crushing facility are not listed separately. The processing emissions shown are representative of both the portable crushing system and the existing facilities. The inherent water content of the coal is generally adequate to control emissions and maintain compliance with opacity standards, but the addition of water may be necessary at times.

Table 3. Gaseous Pollutants Emission Inventory

Pollutant	Annual Process Rate (gallons)¹	Emission Factor (lb/1000 gallons)	Gaseous Emissions (ton/yr)
Engines: Diesel-Fired			
NO_x	124,099	286.1	17.8
VOC	124,099	21.0	1.3
SO₂	124,099	31.2	1.9
CO	124,099	123.5	7.7
Engines: Gasoline-Fired			
NO₂	14,789	95.8	0.7
VOC	14,789	134.0	1.0
CO	14,789	3,960	29.3

V. Existing Air Quality

The WSM Savage Mine is located in Sections 21, 22, 23, 26, 27, and 28, of Township 20 North, Range 57 East in Richland County, Montana. Richland County is considered unclassifiable/attainment for the National Ambient Air Quality Standards (NAAQS) and the Montana Ambient Air Quality Standards (MAAQS) for all criteria air pollutants. The current permit action does not affect emissions at the facility; therefore, existing air quality in the area will not be affected by the current permit action.

VI. Ambient Air Impact Analysis

The current permit action is an administrative amendment and does not affect emissions at the facility; therefore, the current permit action will not result in any impact to ambient air.

VII. Taking or Damaging Implication Analysis

As required by 2-10-105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VIII. Environmental Assessment

The current permit action is an administrative amendment and does not require preparation of an environmental assessment.

Permit Analysis prepared by: M. Eric Merchant, MPH

Date: February 3, 2004